UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,062	12/12/2003	H. Dennis Argo	16263BAUS01U	4249

34645 7590 11/15/2007		EXAMINER
JOHN C. GORECKI, ESQ. P.O BOX 553 CARLISLE, MA 01741		HOANG, HIEU T

ART UNIT	PAPER NUMBER
2152	

NOTIFICATION DATE	DELIVERY MODE
11/15/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

john@gorecki.us

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2003*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This office action is in response to the communication filed on 12/12/2003.

2.   Claims 1-20 are pending and presented for examination.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
>
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
>
> the prior art are such that the subject matter as a whole would have been obvious at the time the
>
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
>
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Chen et al. (Flexible control of a parallelism in a multiprocessor PC router, hereafter

Chen) and further in view of applicant's admitted prior art (Background of the

application, hereafter AAPA), and Venkatanarayan et al. (US 2005/0044221, hereafter

Venkatanarayan) and Shneyderman et al. (Mobile VPNs for next generation GPRS and

UMTS networks, hereafter Shneyderman).

5.   For claim 1, Chen discloses a method of allocating processing capacity of system

processing units in an extranet gateway, the method comprising the steps of:

establishing a first initial expected available bandwidth of a first of the system

processing units; establishing a second initial expected available bandwidth of a second

of the system processing units (4.1, par. 2, different CPUs have their own processing

speeds that is related to their throughput or bandwidth, 5.2, par. 2, e.g. a CPU can

forward 239,234 packets per second); and

Chen does not explicitly disclose:

assigning a Virtual Private Network (VPN) tunnel to one of the first and second

system processing units for processing

However, AAPA discloses the same (AAPA, [0010], assigning tunnels to

processing units)

Chen-AAPA does not disclose by assessing current available bandwidths of the

first and second system processing units;

However, Venkatanarayan discloses by assessing current available bandwidths

of the first and second system processing units (fig. 2, [0017] line 11, use load

balancing algorithm to select a port with the most available bandwidth for forwarding

packets),

Chen-AAPA-Venkatanarayan does not disclose:

the current available bandwidths being determined by assessing the initial

expected available bandwidth for that system processing unit as decremented by other

processing requirements for that system processing unit;

However, Shneyderman discloses the current available bandwidths being

determined by assessing the initial expected available bandwidth for that system

processing unit as decremented by other processing requirements for that system

processing unit (page 7, par. 6, the current available bandwidth is the processing power

of routing/tunneling engines available, page 7, par. 11, current available resources is

available resource of each route processor engine RPE that CPU resources can be

preoccupied by virtual routers).

Therefore, it would have been obvious for one skilled in the art at the time of the

invention to combine the teachings of Chen-AAPA-Venkatanarayan-Shneyderman to

load balance VPN tunnels to processors that has the most available resources to fully

utilize the processing capability of the processors and therefore raise throughput level of

VPN gateway.

6.   For claim 2, Chen-AAPA-Venkatanarayan-Shneyderman further discloses one of

the other processing requirements comprises overhead processing requirements

(Shneyderman, page 5 par. 1).

7.   For claim 3, Chen-AAPA-Venkatanarayan-Shneyderman further discloses one of

the other processing requirements comprises processing requirements associated with

other VPN tunnel assignments (Venkatanarayan, fig. 2, [0017] line 11, Shneyderman,

page 7, last par., use load balancing algorithm to select the most available bandwidth

processor compared to other VPN tunnels).

8.   For claim 4, Chen-AAPA-Venkatanarayan-Shneyderman further discloses one of

the other processing requirements comprises processing requirements associated with

another SPU handling a VPN tunnel assignment (Venkatanarayan, fig. 2, [0017] line 11,

Shneyderman, page 7, last par., use load balancing algorithm to select the most

available bandwidth processor compared to processor with VPN assignments).

9.   For claim 5, Chen-AAPA-Venkatanarayan-Shneyderman further discloses the

processing requirements associated with other VPN tunnel assignments comprise

encapsulation and de-encapsulation processing requirements for the other VPN tunnels

(Shneyderman, page 4, par. 3, encapsulation VPN tunnel).

10.   For claim 6, Chen-AAPA-Venkatanarayan-Shneyderman further discloses the

processing requirements associated with other VPN tunnel assignments comprise at

least one of encryption and de-encryption processing requirements for the other VPN

tunnels (Shneyderman, page 9, IPSec based MVPN, par. 1, fig. 7, IPSec tunnel).

11.   For claim 7, Chen-AAPA-Venkatanarayan-Shneyderman further discloses the

first initial expected available bandwidth is established by multiplying a first processor

speed associated with the first system processing unit with a first conversion factor, and

wherein the second initial expected available bandwidth is established by multiplying a

second processor speed associated with the second system processing unit with a

second conversion factor (Chen, section 5.1, 5.2, a 500 Mhz processor can process up

to 239,234 pps, the conversion factor is 500/239,234).

12.   For claim 8, Chen-AAPA-Venkatanarayan-Shneyderman further discloses the

first conversion factor is the same as the second conversion factor (Chen, 5.1, 5.2, four

500 Mhz CPUs have same conversion factors).

13.   For claim 9, Chen-AAPA-Venkatanarayan-Shneyderman further discloses the

first conversion factor is defined as the amount of bandwidth passable by a given

processor per unit CPU speed (Chen, 5.1, 5.2).

14.   For claim 10, Chen-AAPA-Venkatanarayan-Shneyderman further discloses the

step of assigning the VPN tunnel to one of the first and second system processing units

comprises assigning the VPN tunnel to the system processing unit having the highest

current available bandwidth (Venkatanarayan, fig. 2, [0017] line 11, use load balancing

algorithm to select a port with the most available bandwidth for forwarding packets).

15.   For claim 11, Chen-AAPA-Venkatanarayan-Shneyderman further discloses the

highest current available bandwidth is based on an absolute bandwidth capacity basis

(Venkatanarayan, fig. 2, [0017] line 11, use load balancing algorithm to select a port

with the most available bandwidth for forwarding packets).

16.   For claim 12, Chen-AAPA-Venkatanarayan-Shneyderman further discloses the

highest current available bandwidth is based on a relative bandwidth capacity basis

(Venkatanarayan, fig. 2, [0017] line 11, use load balancing algorithm to select a port

with the most available bandwidth for forwarding packets).

17.   For claim 13, Chen-AAPA-Venkatanarayan-Shneyderman further discloses the

step of reducing the current available bandwidth for the one of the first and second

system processing units to which the VPN tunnel was assigned (Shneyderman, page 7,

last par., each virtual router takes up CPU resources of a RPE, therefore reducing the

maximum available bandwidth that CPU can support).

18.   For claim 14, the claim is rejected for the same rationale as in claim 1.

19.   For claim 15, the claim is rejected for the same rationale as in claims 2, 3, and 4.

20.   For claim 16, the claim is rejected for the same rationale as in claim 6.

21.   For claim 17, the claim is rejected for the same rationale as in claim 7.

22.   For claim 18, the claim is rejected for the same rationale as in claim 8.

23.   For claim 19, the claim is rejected for the same rationale as in claim 10.

24.   For claim 20, the claim is rejected for the same rationale as in claim 11.

Second rejection

25.   Claims 1 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Chen et al. (Flexible control of a parallelism in a multiprocessor PC router, hereafter

Chen) and further in view of applicant's admitted prior art (Background of the

application, hereafter AAPA), and Pham et al. (US 2003/0074473, hereafter Pham) and

Shneyderman et al. (Mobile VPNs for next generation GPRS and UMTS networks,

hereafter Shneyderman).

26.   For claim 1, Chen discloses a method of allocating processing capacity of system

processing units in an extranet gateway, the method comprising the steps of:

        establishing a first initial expected available bandwidth of a first of the system

processing units; establishing a second initial expected available bandwidth of a second

of the system processing units (4.1, par. 2, different CPUs have their own processing

speeds that is related to their throughput or bandwidth, 5.2, par. 2, e.g. a CPU can

forward 239,234 packets per second); and

        Chen does not explicitly disclose:

        assigning a Virtual Private Network (VPN) tunnel to one of the first and second

system processing units for processing

        However, AAPA discloses the same (AAPA, [0010], assigning tunnels to

processing units)

        Chen-AAPA does not disclose by assessing current available bandwidths of the

first and second system processing units;

However, Pham discloses by assessing current available bandwidths of the first
and second system processing units (fig. 3, a plurality of processors in a VPN gateway,
[0060], [0061], lines 1-8, [0062] lines 1-10, selection of a crypto engine (or any
processor engine) is based on its completion time delta, or its bandwidth (time
completing processing for a same packet size, [0056]),

Chen-AAPA-Pham does not disclose:

the current available bandwidths being determined by assessing the initial
expected available bandwidth for that system processing unit as decremented by other
processing requirements for that system processing unit;

However, Shneyderman discloses the current available bandwidths being
determined by assessing the initial expected available bandwidth for that system
processing unit as decremented by other processing requirements for that system
processing unit (page 7, par. 6, the current available bandwidth is the processing power
of routing/tunneling engines available, page 7, par. 11, current available resources is
available resource of each route processor engine RPE that CPU resources can be
preoccupied by virtual routers).

Therefore, it would have been obvious for one skilled in the art at the time of the
invention to combine the teachings of Chen-AAPA-Pham-Shneyderman to load balance
VPN tunnels to processors that has the most available resources to fully utilize the
processing capability of the processors and therefore raise throughput level of VPN
gateway.

27.   For claim 14, the claim is rejected for the same rationale as in claim 1.

Conclusion

28.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure:

- Lin. US 7,117,530.

- Shapira et al. US 2005/0237955.

- Gharhremani. US 7,116,679.

- Chong, Jr. US 6,684,274.

- Maseshima et al. US 6,092,113.

- Ganesan et al. US 2003/0069973.

- Bommareddy et al. US 6,772,226.

- Lor et al. US 2004/0068668.

- Cohen. US 2002/0097736.

- Mathews et al. US 7,111,072.

- McDysan. US 6,778,498.

29.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hieu T. Hoang whose telephone number is 571-270-

1253. The examiner can normally be reached on Monday-Thursday, 8 a.m.-5 p.m.,

EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Bunjob Jaroenchonwanit can be reached on 571-272-3913. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HH

BUNJOB JAROENCHONWANIT
SUPERVISORY PATENT EXAMINER